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SOME BRITISH SPIDERS TAKEN IN 1908.

By Frank P. Smith.

(*Read November 6th*, 1908.)

Plate 25.

Although the past year, judging from the experience of co-workers, seems to have been a fairly productive one as far as arachnids are concerned, lack of time has prevented my devoting more than a few days to really systematic field-work. Several friends, however, have kindly submitted collections for identification, among which were included some species well worthy of record.

There seems, unfortunately, to be no material augmentation in the numbers of the very small band of workers who are seriously studying the spiders, and whilst this condition of things continues it is not possible to undertake extensive distributional work of any value. The most that one can attempt in this direction is the gradual accumulation of isolated records and the occasional publication of such as may be of possible interest to other workers. A distributional list for the British Isles, founded upon the records at present available, would convey the impression that all the spider-population of the kingdom had drifted into about a dozen counties. Again, many local lists are very misleading, inasmuch as they are fairly complete in some families but strikingly weak in others. To an inexperienced person this would suggest some interesting local condition which had modified the spider-fauna by favouring the development of certain groups at the expense of the remainder. The expert, however, by glancing down such a list, can usually find a much simpler explanation in the fact that the collector, not being a trained arachnologist, has simply devoted his attention to one or two methods of collecting—generally "beating" or "sweeping." The wiles of spiders are so refined, and their habitats so diversified,

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that a great deal of ingenuity and an abundant experience are both very necessary as qualifications for successful collecting. The expert, also, can generally form some opinion as to what species he is likely to meet with in any particular district and season, and can modify his methods accordingly. As an instance of this, I was recently initiating a friend into the subtleties of spider-collecting, and during the course of an autumn ramble we found a brickfield plentifully littered with fragments of broken tiles. These I began to turn over, and obtained quite a number of *Erigone* and allied spiders; my friend imitated me, but invariably turned up a blank. Careful observation revealed the reason, and I pointed out that he turned the tiles too suddenly, with the result that the little spiders became alarmed, fell into the grass, and were thus lost. The next spring we were on St. Leonard's beach turning pieces of rock, under which *Gnaphosae* lurked in considerable numbers. Again I was successful, and again my friend had no luck. He somewhat indignantly reminded me of my remarks of the previous autumn, when I attributed his present want of success to the fact that he did not turn his pieces of rock quickly enough; but I was easily able to justify my statements by a few experiments. The rocks under which the *Gnaphosae* were concealed lay upon a pebbly beach, the spiders being enclosed in silken sacs attached both to the rocks and the pebbles. As soon as the rock was lifted the silk was torn, and the spider at once attempted to disappear amongst the pebbles. The only method, therefore, of making a successful capture was to turn the rock as suddenly as possible and seize the spider before it could escape.

The difficulty of obtaining comprehensive literature dealing with the British spiders is so frequently put forward as a serious obstacle to the study of this order that a word or two concerning this matter may not be out of place. It is an undoubted fact that a monograph of the British spiders would be of enormous value to the few workers interested in the Araneidea. But the cost of such a work would be very great, as the figures of the specific characters of each sex, apart from any other illustrations, would number about one thousand; and the demand would be so limited that considerable financial loss would, I think, be inevitable. Again, the nomenclature of the group is, at present, in a rather unstable condition, and it might, therefore, be

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advisable to postpone the publication of anything in the nature of a "standard work" until the various modern writers are a little more in agreement in this matter. The minor literature of the British spiders is by no means extensive nor difficult to obtain, and a fairly recent list of species by the Rev. O. Pickard-Cambridge (1900) can be obtained for use as a working basis. In a group like the present, however, where identification is often a matter of considerable difficulty, no amount of literature will be of so much assistance to the beginner as a little personal help from an experienced worker; and in a field where monetary gain is out of the question and popular encouragement at a minimum, the tyro may depend on finding genuinely enthusiastic naturalists who will be ever willing to help him through his early difficulties.

I will take this opportunity of thanking those gentlemen who have kindly communicated specimens, especially Mr. E. Hayward and his son, Mr. A. E. A. Hayward, of Southampton, Mr. George P. Deeley, of Brierley Hill, Staffs., and Mr. W. Pinkerton, of Watford.

Family ATYPIDAE.

Atypus affinis (Eichw.), 1830.

1830. *Atypus affinis*, Eichw., *Zool. Spec.*
1861. „ *sulzeri*, Bl., *Spid. G. B. I.*
1879. „ *piceus*, Camb., *Spid. Dorset.*

Localities for this interesting tunnel-spider, popularly but erroneously known as the "trap-door spider," continue to be discovered in various parts of the South of England. Probably it is not nearly so uncommon as the difficulty of detecting it has led it to be generally supposed. On one side of a road running through the Bexhill High Woods large numbers of the tubes of this spider were noticed. One, on being dug out, was found to be considerably more than a foot in length. This is considerably above the average, being probably due to the nature of the soil, which in this locality contains a very large proportion of sand and is exceedingly friable. This species also occurs on the Addington Hills, near Croydon, chiefly by the side of a somewhat steep path leading down from the base of the broad steps near the refreshment rooms on the southern extremity of the hills. It should be remembered that it is practically useless to search

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any slope other than one with a south or south-west aspect, and also that the tubes, when occurring in the heath country, are usually concealed under large overhanging tufts of heather.

Family DICTYNIDAE.

Ciniflo fenestralis (Stroem), 1768.

1768. *Aranea fenestralis*, Stroem, *Det. Trondh. Selsk. Skrift.*
1778. „ *atrox*, De Geer, *Mém.*
1861. *Ciniflo* „ Bl., *Spid. G. B. I.*
1881. *Amaurobius fenestralis*, Camb., *Spid. Dorset.*
1900. „ „ „ *List Brit. Irish Spid.*

This species, although not by any means rare, is often confounded, especially in the female sex, with the very common *C. similis*, Bl. The form of the epigynae, as illustrated on Plate 25, Figs. 1 and 2, will at once decide the species. *C. fenestralis* occurs pretty frequently in the London area under loose bark. *C. similis* is more or less a house-spider, frequenting holes in walls and crannies between boards in out-buildings.

Protadia subniger (Camb.), 1861.

1861. *Drassus subniger*, Camb., *Ann. Mag. N. H.*
1861. *Lethia stigmatisata*, Menge, *Preuss. Spin.*
1879. „ *mengii*, Camb., *Spid. Dorset.*
1879. „ *puta*, „ „ „
1881. „ *subniger*, „ „ „
1889. „ *albispiraculis*, Camb., *Proc. Dors. F. Club.*

During May several specimens of both sexes were taken on iron railings between Croydon and Addington, Surrey.

Lethia humilis (Bl.), 1855.

1855. *Ciniflo humilis*, Bl., *Ann. Mag. N. H.*
1861. „ „ „ *Spid. G. B. I.*
1869. *Lethia varia*, Menge, *Preuss. Spin.*
1879. „ *humilis*, Camb., *Spid. Dorset.*

Males of this species occurred at Bexhill towards the end of May, but not at all commonly.

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Family DRASSIDAE.

Gnaphosa sylvestris (Bl.), 1833.

1833. *Drassus sylvestris*, Bl., *Lond. Edin. Phil. Mag.*
1861. „ „ „ *Spid. G. B. I.*
1875. „ *criminalis*, Camb., *Ann. Mag. N. H.*
1879. „ „ „ *Spid. Dorset.*
1881. „ *infuscatus*, „ „ „
1881. „ *sylvestris*, „ „ „
1900. „ „ „ *List Brit. Irish Spid.*

Males of this uncommon species were found running on sandy paths in hot sunshine in Bexhill High Woods during the last week of May.

Prosthesima subterranea (C. L. K.), 1833.

? 1763. *Aranea petiverii*, Scop., *Ent. Carn.* (*ad part.*).
1833. *Melanophora subterranea*, C. L. K., *Die Arach.*
? 1861. *Drassus ater*, Bl., *Spid. G. B. I.*
1879. *Prosthesima petiverii*, Camb., *Spid. Dorset.*
1900. „ „ „ *List Brit. Irish Spid.*

Males of this species occurred at Hastings and Bexhill. They appear, however, to correspond with the figure of *P. apricorum* in *Aran. Hungariae* rather than with that stated to represent *P. subterranea* in the same work.

Family CLUBIONIDAE.

Micaria scintillans (Camb.), 1871.

1871. *Drassus scintillans*, Camb., *Trans. Linn. Soc.*
1879. *Micaria* „ „ *Spid. Dorset.*

A male of this very rare and local species was taken on St. Leonard's shore in June.

Agroeca inopina (Camb.), 1886.

1886. *Agroeca inopina*, Camb., *Proc. Dors. F. Club.*

A female of this rare spider was found by Mr. Frank Morey at Marvel Copse, Isle of Wight, in November, 1907.

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Agroeca proxima (Camb.), 1871.

1871. *Agelena proxima*, Camb., *Trans. Linn. Soc.*
1879. *Agroeca* „ „ *Spid. Dorset.*

This species occurred very abundantly at St. George's Hill, Weybridge, during the summer months. The male palpus is figured on Plate 25, Fig. 3.

Scotina gracilipes (Bl.), 1859.

1859. *Agelena gracilipes*, Bl., *Ann. Mag. N. H.*
1861. *Drassus praelongipes*, Camb., *Ann. Mag. N. H.*
1861. *Agelena gracilipes*, Bl., *Spid. G. B. I.*
1879. *Liocranum gracilipes*, Camb., *Spid. Dorset.*
1900. *Agroeca gracilipes*, Camb., *List Brit. Irish Spid.*

A female was found under a stone at Shirley, Surrey, on May 23rd.

Scotina celans (Bl.), 1841.

1841. *Agelena celans*, Bl., *Trans. Linn. Soc.*
1861. „ „ „ *Spid. G. B. I.*
1879. *Liocranum celans*, Camb., *Spid. Dorset.*
1900. *Agroeca* „ Camb., *List Brit. Irish Spid.*

A female was found under a stone at Sanderstead, Surrey, in February.

Family SPARASSIDAE.

Sparassus viridissimus (De Geer), 1778.

1757. *Araneus roseus*, Clk., *Sv. Spindl.* (= ♂) (*pre-Linnean*).
1757. „ *virescens*, Clk., *Sv. Spindl.* (= ♀) (*pre-Linnean*).
1778. *Aranea viridissima*, De Geer, *Mém.*
1793. „ *smaragdula*, Fabr., *Syst. Ent.*
1806. *Micromata smaragdina*, Latr., *Gen. Crust. Ins.*
1861. *Sparassus smaragdulus*, Bl., *Spid. G. B. I.*
1861. „ *ornatus*, Westr., *Ar. Suec.*
1867. „ „ Bl., *Ann. Mag. N. H.*
1881. *Micrommata virescens*, Camb., *Spid. Dorset.*
1900. „ „ „ *List Brit. Irish Spid.*
1907. *Sparassus viridissimus*, F. P. S., *Journ. Quekett Club.*

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Specimens of this lovely species, of the female sex, but almost all immature, were seen in the Bexhill Woods during the first week of June.

Family PHILODROMIDAE.

Tibellus oblongus (Walck.), 1802.

1802. *Aranea oblonga*, Walck., *Faune Par.*
1833. *Philodromus trilineatus*, Sund., *Sv. Ak. Handl.*
1861. „ *oblongus*, Bl., *Spid. G. B. I.*
1881. *Tibellus oblongus*, Camb., *Spid. Dorset.*

During the summer months this species occurred very plentifully amongst coarse grass by the side of a road near Oxted, Surrey. It commonly rests upon a dried grass stem with its legs extended anteriorly and posteriorly, and in this position it is most difficult to detect. The movements of the male are very rapid and erratic, rendering capture a matter of considerable difficulty.

Philodromus rufus (Walck.), 1825.

1825. *Philodromus rufus*, Walck., *Faune Franç.*
1850. „ *clarkii*, Bl., *Ann. Mag. N. H.*
1861. „ „ „ *Spid. G. B. I.*
1879. „ *pellax*, Herman, *Ungarns Spinnenfauna.*
1881. „ *clarkii*, Camb., *Spid. Dorset.*
1900. „ „ „ *List Brit. Irish Spid.*

Females of this species were received from Mr. E. Hayward, by whom they were taken in the New Forest.

Family THOMISIDAE.

Xysticus lateralis (Hahn.), 1831.

1831. *Thomisus lateralis*, Hahn., *Die Arach.*
1845. *Xysticus lanio*, C. L. K., *Die Arach.*
1881. „ „ Camb., *Spid. Dorset.*
1900. „ „ „ *List Brit. Irish Spid.*

This species occurred in the New Forest during July, both sexes being then adult.

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Xysticus sabulosus (Hahn.), 1831.

1831. *Thomisus sabulosus*, Hahn., *Die Arach.*
1861. „ „ Bl., *Spid. G. B. I.*
1881. *Xysticus* „ Camb., *Spid. Dorset.*

A single female taken at Brockenhurst in July.

Family SALTICIDAE.

Neon reticulatus (Bl.), 1853.

1853. *Salticus reticulatus*, Bl., *Ann. Mag. N. H.*
1861. „ „ „ *Spid. G. B. I.*
1861. *Attus frontalis*, Westr., *Ar. Suec.* (♀ only).
1881. *Neon reticulatus*, Camb., *Spid. Dorset.*

A female of this pretty and distinct little spider turned up at St. George's Hill, Weybridge, Surrey, in July. This species appears to be much commoner in the north than in the south of England.

Evarcha blancardi (Scop.), 1763.

1757. *Araneus flammatus*, Clk., *Sv. Spindl.* (*pre-Linnean*).
1757. „ *falcatus*, Clk., *Sv. Spindl.* (*pre-Linnean*).
1763. *Aranea blancardi*, Scop., *Ent. Carn.*
1802. „ *coronata*, Walck., *Faune Par.*
1825. *Attus capreolus*, Walck., *Faune Franç.*
1831. *Salticus abietis*, Hahn., *Die Arach.*
1861. „ *coronatus*, Bl., *Spid. G. B. I.*
1881. *Hasarius falcatus*, Camb., *Spid. Dorset.*
1900. „ „ „ „ „

This beautiful but not uncommon spider was strongly in evidence in the New Forest during the summer and autumn. (Fig. 4.)

Evarcha marcgravii (Scop.), 1763.

1757. *Araneus arcuatus*, Clk., *Sv. Spindl.* (*pre-Linnean*).
1763. „ *marcgravii*, Scop., *Ent. Carn.*
1846. *Euophrys farinosa*, C. L. K., *Die Arach.*
1846. „ *paludicola*, C. L. K., *Die Arach.*
1868. *Attus albo-ciliatus*, Sim., *Monog. Att.*

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1876. *Hasarius falcatus*, Sim., *Ar. France* (♀ only).
1881. „ *arcuatus*, Camb., *Spid. Dorset.*
1900. „ „ „ *List Brit. Irish Spid.*

Both sexes of this fine spider occurred in the adult state at Brockenhurst during August.

Myrmarachne formicaria (De Geer), 1778.

1778. *Aranea formicaria*, De Geer, *Mém.*
1825. *Attus formicoides*, Walck, *Faune Franç.*
1837. *Pyrophorus semirufus*, C. L. K., *Uebers.*
1846. *Pyrophorus helveticus*, C. L. Koch, *Die Arach.*
1861. *Salticus formicarius*, Bl., *Sp. G. B. I.*
1881. *S. formicarius*, Camb., *Spid. Dorset.*
1900. *S. formicarius*, Camb., *List Brit. Irish Spid.*
1907. *Toxeus formicarius*, F. P. S., *Journ. Quekett Club.*

Myrmarachne seems to be the correct generic name for this species in preference to *Toxeus*.

Mr. H. Donisthorpe, who has recently taken specimens at Sandown, Isle of Wight, and has kindly communicated the data (August 15th ♀ ; August 26th ♂ and ♀), tells me that in each instance he found the spider in company with an ant, *Myrmica scabrinodis*, at the roots of *Lotus major*.

Family PISAURIDAE.

Dolomedes fimbriatus (Linn.), 1758.

1757. *Araneus fimbriatus*, Clk., *Sv. Spindl.* (*pre-Linnean*).
1757. „ *undatus*, Clk., *Sv. Spindl.* (*pre-Linnean*).
1758. *Aranea fimbriata*, Linn., *Syst. Nat.*
1758. „ *virescens*, Linn., *Syst. Nat.*
1778. „ *paludosa*, De Geer, *Mém.*
1778. „ *marginata*, De Geer, *Mém.*
1831. *Dolomedes limbatus*, Hahn, *Die Arach.*
1859. „ *ornatus*, Bl., *Ann. Mag. N. H.*
1861. „ *ornatus*, Bl., *Spid. G. B. I.*
1861. „ *fimbriatus*, Bl., *Spid. G. B. I.*
1881. „ *fimbriatus*, Camb., *Spid. Dorset.*

Immature specimens from one of the New Forest "Bogs" were received from Mr. A. E. A. Hayward in August.

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Family LYCOSIDAE.

Tarentula carinata (Oliv.), 1789.

1757. *Araneus pulverulentus*, Clk., *Sv. Spindl.* (*pre-Linnean*).
1789. *Aranea carinata*, Oliv., *Ency. Méth.*
1825. *Lycosa graminicola*, Walck., *Faune Franç.*
1834. *Lycosa gastienensis*, C. L. K., *Deuts. Ins.*
1841. ,, *rapax*, Bl., *Trans. Linn. Soc.*
1848. *Tarentula cuneata*, C. L. K., *Die Arach.*
1861. *Lycosa rapax*, Bl., *Spid. G. B. I.*
1881. *Tarentula pulverulenta*, Camb., *Spid. Dorset.*
1900. ,, *pulverulenta*, Camb., *List Brit. Irish Spid.*

This common species occurred plentifully in a very restricted area in Epping Forest, near Chingford, during May. Hitherto I have found it rather rare in the London district.

Tarentula cuneata (Sund.), 1833.

1757. *Araneus cuneatus*, Clk., *Sv. Spindl.* (*pre-Linnean*).
1833. *Lycosa cuneata*, Sund., *Sv. Ak. Handl.*
1834. ,, *clavipes*, C. L. K., *Deuts. Ins.*
1837. ,, *armillata*, Walck., *Ins. Apt.*
1871. ,, *barbipes*, Camb., *Trans. Linn. Soc.*
1881. *Tarentula cuneata*, Camb., *Spid. Dorset.*

Males of this species, easily recognisable by the black and greatly incrassated tibiae of the front legs, were taken during the last week of May and the first week of June at Bexhill, running rapidly on dusty roads at the hottest part of the day.

Tarentula nemoralis (Westr.), 1861.

1848. *Lycosa nivalis*, C. L. Koch, *Die Arach.* (*ad. partem*).
1861. ,, *nemoralis*, Westr., *Ar. Suec.*
1872. *Tarentula meridiana*, Thor., *Rem. on Syn.*
1907. ,, *nemoralis*, F. P. S., *Journ. Quekett Club.*

The discovery of an adult male and an immature female of this species at Bexhill, as recorded in the *Quekett Journal* for November, 1907, induced me to spend the latter half of May of this year in the same locality. The original pair were found in a

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tube of spiders collected in the neighbourhood of Bexhill and labelled "under stones," and I was by no means certain as to the exact locality in which they were taken. Turning stones is not, as a rule, a profitable method of searching for *Tarentulae*, they being more frequently captured when running in bright sunshine; and working on these lines, I visited at the hottest part of the day all the likely spots where I had collected the year before. After a week's failure I found on a small waste of dried-up bracken a number of spiders which microscopical examination afterwards showed to be *T. nemoralis*. Both sexes occurred in the adult state and were fairly plentiful, but restricted to a very small area. The spider is an extremely difficult one to capture, as it runs and jumps with great rapidity. It might be easily mistaken, when upon the ground, for a very small specimen of the common *T. carinata*. In alcohol, however, the reddish markings upon the abdomen impart quite a characteristic appearance.

Family ARGIOPIDAE

Aranea cucurbitina typica Linn., 1758.

1757. *Araneus cucurbitinus*, Clk., *Sv. Spindl.* (*pre-Linnean*).
1758. *Aranea cucurbitina*, Linn., *Syst. Nat.*
1763. „ *frischii*, Scop., *Ent. Carn.*
1767. „ *octo-punctata*, Linn., *Syst. Nat.*
1775. „ *senoculata*, Fabr., *Syst. Ent.*
1778. „ *viridis-punctata*, De Geer, *Mém.*
1864. *Epeira cucurbitina*, Bl., *Spid. G. B. I.*
1881. „ „ Camb., *Spid. Dorset.*

Aranea cucurbitina opisthographa, Kulcz., 1905.

1905. *Araneus cucurbitinus opisthographus*, Kulcz., *Bull. Acad. Cracovie.*

Several years ago, whilst preparing a plate of the palpi of the various species of *Aranea*, I took a spider from a tube in my cabinet labelled *Aranea cucurbitina*, and, having made a rough sketch of a palpus, threw the specimen away, it having been somewhat badly mutilated during examination. Shortly after-

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wards, having made a similar drawing from another specimen of the same species, I happened to compare the two, and discovered that they exhibited very considerable variation in several minor characteristics. I began to fear that I had thrown away something valuable—new, probably, to the British list; and I at once set to work to collect long series of *A. cucurbitina* and to critically examine the males. My lost specimen was, unfortunately, unlocalised. During 1907, in particular, I made some very extensive collections of *A. cucurbitina* at Hastings and Bexhill, but found nothing amongst them in any way departing from the recognised type. My short stay at Bexhill, during 1908, as previously mentioned, was mainly devoted to hunting *Tarentulae*, but I bottled, in addition, a general assortment of specimens; and, on examining my captures later, discovered a single male which agreed with my long-lost spider, and which turns out to be the subspecies *Aranea cucurbitina opisthographa* of Prof. Kulczynski, new to the British list. During August Mr. Hayward sent me a number of specimens obtained by beating in the New Forest, and amongst these I was fortunate enough to discover further males of this rarity. The female would appear from the original description to be exceedingly like that of *A. cucurbitina typica*, and I can at present give no really tangible distinguishing character for this sex. The European species of the "*cucurbitina*" group of the genus *Aranea* are dealt with very fully by Prof. Kulczynski in "Fragmenta Arachnologica II." (*Bulletin de l'Académie des Sciences de Cracovie*, 1905).

Family THERIDIIDAE.

Asagena phalerata (Panz.), 1801.

1801. *Phalangium phaleratum*, Panz., *Faun. Ins. Germ.*
1802. *Aranea signata*, Walck., *Faune Par.*
1803. „ *serratipes*, Schrank, *Fauna Boica.*
1831. *Theridium quadri-signatum*, Hahn., *Die Arach.*
1864. *Theridion signatum*, Bl., *Spid. G. B. I.*
1881. *Asagena phalerata*, Camb., *Spid. Dorset.*

A female of this very rare species was taken by Mr. W. Pinkerton, at Watford.

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Family LINYPHIIDAE.

Bathyphantes nigrinus (Westr.), 1851.

1851. *Linyphia nigrina*, Westr., *Goteb. Handl.*
1853. „ *pulla*, Bl., *Ann. Mag. N. H.*
1864. „ „ Bl., *Spid. G. B. I.*
1866. *Bathyphantes terricolus*, Menge, *Preuss. Spin.*
1879. *Linyphia nigrina*, Camb., *Spid. Dorset.*

Bathyphantes pullatus (Camb.), 1863.

1863. *Linyphia pullata*, Camb., *Zoologist.*
1879. „ *pullata*, Camb., *Spid. Dorset.*

The two foregoing species occurred in the Hastings district. The females may be easily distinguished under the microscope by the form of the epigynae. See Figs. 7 and 8.

Porrhomma microphthalmum (Camb.), 1871.

1871. *Linyphia microphthalma*, Camb., *Trans. Linn. Soc.*
1871. „ *decens*, Camb., *Trans. Linn. Soc.*
1878. „ *incerta*, Camb., *Ann. Mag. N. H.*
1879. „ *decens*, Camb., *Spid. Dorset.*
1879. „ *incerta*, Camb., *Spid. Dorset.*
1881. „ *microphthalmum*, Camb., *Spid. Dorset.*
1894. *Porrhomma meadii*, F. Camb., *Ann. Mag. N. H.*

Our member Mr. G. P. Deeley very kindly sent me a number of spiders, apparently of this species, taken in a filter bed at Brierley Hill, Staffs. Collections of *Porrhommae*, especially if they be fairly extensive ones from restricted areas, are particularly welcome, as, without doubt, the genus is one which presents unusual difficulties to the araneologist. Mr. Fred. O. Pickard-Cambridge in *Annals and Magazine of Natural History* for 1894 very thoroughly investigated this genus and created a new species, *P. campbellii*, based upon a single female specimen found in an extensive collection received from Dr. Campbell. Although I have not had the opportunity of examining the type specimen, nor yet to examine the historical collections which Mr. F. Cambridge had at his disposal during his investigations, I hardly feel disposed to accept this species upon the

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characters which the author regards as specific. The arrangement of the eyes, their relative size, and their distance from the frontal margin of the caput are all characters which I find particularly unstable in this genus. The form of the abdomen, its colour, and the size of the entire spider are also characteristics which cannot be implicitly trusted for purposes of specific differentiation. I have on more than one occasion met with male specimens typically *microphthalmum* as far as actual structure was concerned, but with the exception that the entire spider, including the palpi, was much below the normal size. Such forms ought probably to be regarded as dwarfed varieties rather than as true species, on exactly the same lines as *Gnaphosa lapidosa* var. *macer*. Until, however, a far larger amount of material than is at present available can be examined, I do not consider it advisable to make any definite alterations in the existing list of admitted *Porrhommae*, and must content myself with remarking that, to my mind, both *P. oblongum* and *P. campbellii* are, as species, extremely weakly defined from *P. microphthalmum*.

The small size of the eyes in this genus, and more particularly their often imperfect structure, is a matter which may be worthy of a few remarks. Many of the earliest examples described were found in caves and coal-mines, and it was promptly suggested that the diminished eyes were due to the influence of the darkness of the creatures' habitat. However true this may be in the matter of caves of considerable geological antiquity, it hardly seems to apply in the case of coal-mines. Besides, specimens taken in meadows near London possess eyes hardly, if at all, larger than the types from the Durham mines. The origin of the spiders in coal-mines is not absolutely certain, but it seems reasonable to suppose that they have been introduced in the horses' fodder. An examination of this commodity, before it is taken down the shaft, will convince one that a very large number of small spiders and insects are concealed in the bundles. Once in the bowels of the earth, and cut off from the normal food supply, the struggle for existence amongst these creatures must be exceedingly keen, and it requires a very small stretch of the imagination to suggest that those species normally possessed of imperfect eyes would more easily adapt themselves to the altered condition than their comrades with well-formed optical

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organs, much in the same way as a blind or nearly blind man has the advantage of his fellows during a dense fog. This being so, the application of the generally accepted evolutionary theories would naturally bring us to the present state of things—the survival of the *Porrhommae*. No doubt as time goes on the eyes of these little mine-dwellers will become more and more vestigial, turning to mere pigment patches, and finally disappearing altogether. It is stated on excellent authority that the *Porrhommae* in the coal-mines live together in colonies, and it is not impossible that they find this advantageous in dealing with large and troublesome victims. A small Eresid from South Africa has highly-developed social habits, large numbers of individuals spinning a common web and killing unwieldy victims by concerted attack. By the kindness of Mr. R. Hancock, of Stechford, I had an opportunity of keeping a colony of these remarkable spiders for a considerable time, and was greatly struck by their curious habits. I at once thought of the accounts of the coal-mine *Porrhommae*, and wondered whether their habits were in any way similar. Opportunity, however, has not yet arrived for personal investigation of the matter.

Centromeria bicolor typica (Bl.), 1833.

1833. *Neriene bicolor*, Bl., *Lond. Edin. Phil. Mag.*
1834. *Linyphia comata*, Wid., *Zool. Misc.*
1864. *Neriene bicolor*, Bl., *Spid. G. B. I.*
1879. „ „ Camb., *Spid. Dorset.*
1900. *Tmeticus* „ „ *List Brit. Irish Spid.*

Centromeria bicolor concinna (Thor.), 1875.

1900. *Tmeticus concinnus*, Camb., *List Brit. Irish Spid.*

Specimens of this species occurred in several localities near London, and opportunities have also arisen for the examination of series taken in the north of England. To my mind the form *concinna* ought to be regarded as a sub-species of *bicolor*. The paracymbium of the male palpus certainly exhibits a very considerable difference if compared in a typical example of each form; but intermediate types are of frequent occurrence, which would seem to preclude our regarding the two as specifically distinct. Well-defined females differ in size, in the armature of

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the legs, the position of the eyes, and the height of the clypeus; but all these characters are variable, and intermediate forms are commonly found. The epigynum appears to exhibit no well-marked differential character.

The significance of the terms "variety" and "sub-species" as employed in this and previous papers may need a few words of explanation. We find in the Araneidea numerous instances where certain types cannot be satisfactorily disposed of by the usual binomial system, and where the use of sub-specific and varietal names is conducive to the proper appreciation of the real relationship between the forms in question. Individual specimens are, after all, the only really existent and tangible objects, and as soon as one begins even to group individuals into species one finds that hard-and-fast rules are well-nigh impossible, and that personal opinion must of necessity play an important part in the matter. At the same time a very methodical student must obviously base his work on some system which he can follow, more or less, as his opinion dictates, or as circumstances demand. This being so, it is visibly a great convenience to his *confrères* if he definitely gives some idea of the principle upon which he works instead of imposing upon them the necessity for deducing his methods from his results. In the employment of the terms "species," "sub-species," and "variety," I am quite aware that the criteria for their differentiation must of necessity be almost conventional: still we are dealing with a complex group of animals, and can hardly expect to classify them scientifically and satisfactorily by a simple rule-of-thumb formula.

In cases where two forms occur differing very slightly in the primary sexual characters in one sex (*e.g. Aranea cucurbitina* and *A. opisthographa*) or in the primary sexual characters of one sex and the secondary of the other (*e.g. Philodromus aureolus* and *P. cespiticolis*), and especially where intermediate forms exist, or where, at any rate, both forms are subject to considerable variation, I am inclined to regard them as sub-species and adopt a trinomial system of nomenclature. Several species at present regarded as distinct (*e.g. Erigone dentipalpis* and *E. atra*) could with just as much reason be classified as sub-species.

Where two types identical in sexual structure differ in size,

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with or without some additional character of minor importance, especially if intermediate forms exist, I prefer, as a rule, to regard them merely as varieties (*e.g. Gnaphosa lapidosa* and *G. macer*).

Colour variations, without structural characteristics, I regard as a grade decidedly lower in importance than the varietal characters mentioned above, and I have therefore made a practice of using no special naming for the indication of such differences. Obviously one must draw a line somewhere, and however one may be tempted to consider the colour-variety *jejunus* of *Philodromus levipes* worthy of a distinguishing title, the same reasoning pushed a little farther would lead one to encumber the list with three varietal names for *Theridium redimitum*, two each for such species as *Thomisus onustus*, *Tapinopa longidens*, *Drapetisca socialis*, and so on.

It must be pretty obvious from these remarks that the keen systematist, who regards consistency as of primary importance, will have many a bitter pill to swallow in dealing with the spiders. There seems to be a total lack of uniformity in the systematic value of certain characters, and those regarded as of primary importance in one group may have to be considered of minor importance in another. The number of the tarsal claws, for example, regarded as of paramount importance in most sections of the order, becomes merely a character of generic value in the family Dysderidae.

The case of *Lophomma subaequalis* and *L. laudatum*, referred to farther on, also furnishes a good example in illustration of the above remarks. The males of these spiders are easily distinguishable by two well-defined characters—the external branch of the palpal tarsus, known as the paracymbium, and a transparent membrane connected with the palpal organs. Apart from these portions of structure the two would probably be inseparable. Take now the case of *Gnaphosa lapidosa* and its variety *cuprea*, another pair consisting of a southern and a northern form. Belonging as they do to a family of a far simpler type, they possess neither a paracymbium nor the transparent membrane above mentioned. Apart from this, however, they possess general characters which make them quite recognisable. Nevertheless, the absence of any tangible morsel of structure which can be exactly described and figured

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as an absolute criterion of specific identity forbids the systematist from regarding these two forms as anything more than varieties.

The whole subject, however, from this aspect is an exceedingly involved one, and a very considerable time is likely to elapse ere the various workers will have brought their systems into something like uniformity.

Lessertia, n.g.

General characters as in the "Tmeticus" group.

Both sexes.—Posterior eyes about equidistant. Anterior laterals hardly larger than posterior centrals. Femora without spines above. Tibiae with strong spines above, two each on I., II. and III., one on IV. No metatarsal spines. Sternum considerably longer than broad, produced in an almost parallel-sided elongation between the hind coxae. Falces with well-marked lateral transverse striae (? stridulatory).

Male only.—Maxillae strongly conical near the middle of the under surface. Palpal tarsus at least as long as tibia, which is considerably longer than patella; palpal tarsus broader than tibia, which is broader than patella.

Type, *Lessertia simplex* (F. Camb.), 1892.

In the breaking up of the heterogeneous group of spiders included under the name *Tmeticus*, the species *simplex* seeming to possess characters sufficiently distinct to justify its being regarded as the type of a separate genus, I propose the generic title *Lessertia*.* This genus is closely allied both to *Leptorhoptrum*, Kulcz. and to *Tmeticus*, Menge; the following table will, however, enable one to separate the three without much difficulty.

(*a*) *Both sexes.*

(1) Sternum as broad as long. Spines on tibiae extremely minute, shorter than the diameter of the joint. Falces (at least in male) without definite transverse striae on outer side . . . . . *Tmeticus.*

Sternum considerably longer than broad, produced in a parallel-sided elongation between the hind coxae.

* *Nom. prop.*, in honour of Mons. Roger de Lessert, who is responsible for some very valuable work in connection with the Araneidea of Switzerland.

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Spines on tibiae strong or moderately so, at any rate longer than diameter of joint. Falces with well-marked transverse striae on outer side . . (2).

(2) Tibia I. with two spines above and one on inner side. These spines moderately strong, somewhat longer than diameter of joint . . . . *Leptorhoptrum.*

Tibia I. with two spines above, but without any on inner side. Spines strong and about twice as long as the diameter of the joint . . . . *Lessertia.*

(*b*) *Males only.*

(1) Falces each furnished with a powerful tooth-like projection in front, bearing at its extremity and also on its side a strong seta . . . . (2).

Falces without such projections. Tibia of palpus slightly longer than patella and than tarsus . *Leptorhoptrum.*

(2) Patella of palpus abnormally long, furnished, below its anterior extremity, with a conical projection. Tibia as long as patella. Tarsus about half as long as tibia. In breadth patella, tibia, and tarsus practically equal. Maxillae produced conically at anterior exterior angle, also greatly produced at point of insertion of palpus (somewhat as in *Erigone*) . . . . . *Tmeticus.*

Patella of palpus normal. Tibia considerably longer than patella. Tarsus at least as long as tibia. Tarsus broader than the tibia which is broader than the patella. Maxillae furnished on inferior surface with a strong conical projection, otherwise normal . . . . . *Lessertia.*

Lessertia simplex (F. Camb.), 1892.

1892. *Tmeticus simplex*, F. Camb., *Ann. Mag. N. H.*
1900. „ „ Camb., *List Brit. Irish Spid.*

Specimens of this local rarity were kindly sent to me by Mr. G. P. Deeley from Brierley Hill, Staffs. They were taken in a dry filter-bed in company with *Porrhomma microphthalmum.*

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Oedothorax gibbosus (Bl.), 1841.

1841. *Neriene gibbosa*, Bl., *Trans. Linn. Soc.*
1841. ,, *tuberosa*, Bl., *Trans. Linn. Soc.*
1864. ,, *gibbosa*, Bl., *Spid. G. B. I.*
1864. ,, *tuberosa*, Bl., *Spid. G. B. I.*
1879. ,, *gibbosa*, Camb., *Spid. Dorset.*
1879. ,, *tuberosa*, Camb., *Spid. Dorset.*
1900. *Gongylidium gibbosum*, Camb., *List Brit. Irish Spid.*
1900. ,, *tuberosum*, Camb., *List Brit. Irish Spid.*
1904. *Oedothorax gibbosus*, F. P. S., *Journ. Quekett Club.*
1904. ,, *tuberosus*, F. P. S., *Journ. Quekett Club.*

This small but striking species occurs not uncommonly in one restricted area in Epping Forest. Invariably associated with it is the spider known as *Oedothorax tuberosus* (Bl.). A very careful examination of extensive series of specimens of *O. gibbosus* and *O. tuberosus* has led me to the conclusion that their claim to being distinct species is very doubtful. In each of several collections made in Epping Forest the proportion of *gibbosus* to *tuberosus* was about equal. The females were numerically about equal to the sum total of the males, but the most critical examination failed to reveal any characteristic by means of which they might be separated into two species or varieties. The epigynum is very constant in form, differing slightly, but distinctly, from that of *O. fuscus* or of *O. retusus*. It is, however, of very simple structure, and would be less likely therefore to exhibit any considerable variation. In fact, it could with some reason be argued in support of the specific distinctions of *gibbosus* and *tuberosus* that the females are indistinguishable purely by reason of the simplicity of their structure.

At first glance, the two forms of male appear totally different. In *gibbosus* the cephalo-thorax is strongly elevated near its centre, forming a very distinct, obtusely rounded eminence. The anterior side of this eminence is deeply excavated, the cavity being covered with a plentiful supply of blackish hairs. In *tuberosus* the eminence is of somewhat similar form, but lacks the characteristic excavation in front. The difference is a striking one, and I have never met with a form which could be regarded as absolutely intermediate. On the other hand, the palpal organs appear to be absolutely identical in the two types.

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Taking everything into consideration, I prefer to treat these two forms as specifically identical, regarding *tuberosus* as a dimorphic form of male, but not in any way as a subspecies or variety.

In the specimens I have been able to examine there was but little variation in the typical *gibbosus* male, whereas in the form *tuberosus* the cephalo-thorax varied in shape to a considerable extent.

Oedothorax apicatus (Bl.), 1850.

1850. *Neriene apicata*, Bl., *Ann. Mag. N. H.*
1851. *Erigone gibbicollis*, Westr., *Goteb. Handl.*
1859. *Micryphantes tuberculatus*, Grube, *Verz. Aruch. Liv. Kur. Ehstl.*
1864. *Neriene apicata*, Bl., *Spid. G. B. I.*
1867. *Micryphantes gibbus*, Ohl., *Ar. Prov. Preuss.*
1879. *Neriene apicata*, Camb., *Spid. Dorset.*
1900. *Gongylidium apicatum*, Camb., *List Brit. Irish Spid.*
1904. *Stylothorax apicatus*, F. P. S., *Journ. Quekett Club.*

Specimens occurred pretty freely at Hastings and also at South Norwood, Surrey.

Lophomma subaequalis (Westr.), 1851.

1851. *Erigone subaequalis*, Westr., *Goteb. Handl.*
1871. *Walckenaera fortuita*, Camb., *Trans. Linn. Soc.*
1879. „ *subaequalis*, Camb., *Spid. Dorset.*
1900. *Tapinocyba subaequalis*, Camb., *List Brit. Irish Spid.*
1906. *Lophomma subaequalis*, F. P. S., *Journ. Quekett Club.*

Lophomma laudatum (Camb.), 1881.

1881. *Walckenaera laudata*, Camb., *Spid. Dorset.*
1906. *Lophomma laudatum*, F. P. S., *Journ. Quekett Club.*

In the *Quekett Journal* for November, 1907, I recorded under the name *Lophomma subaequalis* a number of spiders taken at Hastings. A careful comparison with North of England specimens has convinced me that these Hastings examples really belong to the allied species *L. laudatum*. The two species are extremely similar in form and structure, so much so that it has been suggested that they are identical, with a slight dimorphism

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in the female. Even were the males inseparable, however, I should be very unwilling to regard the females as dimorphic forms of a single species, seeing that one is typically a northern and the other a southern form. Dimorphism ought, to my mind, to be admitted only where, as in the case of *Oedothorax tuberosus* and *gibbosus* and *Troxochrus scabriculus* and *cirrifrons*, the two forms almost invariably occur together. In the present case, however, a careful examination of the male palpi will show small but sharply defined and apparently quite constant differences, particularly in the paracymbium (the modified outer branch of the tarsal joint) and slightly in the transparent membrane connected with the palpal organs (Figs. 5 and 6).

Entelecara acuminata (Wid.), 1834.

1834. *Theridion acuminatum*, Wid., *Zool. Misc.*
1863. *Walckenaera altifrons*, Camb., *Zoologist.*
1879. „ „ Camb., *Spid. Dorset.*
1906. *Entelecara acuminata*, F. P. S., *Journ. Quekett Club.*
1907. „ „ F. P. S., *Journ. Quekett Club.*

This species occurred at Bexhill in enormous numbers during the last week of May and the first week of June. The iron railings surrounding the cemetery at Clinch Green were so thickly populated that hardly a crevice could be found which did not contain a female, generally with a male in the near vicinity. In order to make a typical gathering I collected as far as possible every specimen upon a ten-foot extent of railing—yet in less than half an hour their places had been taken by new arrivals, so much so that I was unable to decide exactly where the collection had been made. The spiders were not using the railings as a position of vantage from which to embark on an aërial excursion, but had built their tiny snares there. Curiously enough, I did not see, amongst the thousands of webs, a victim of any sort, and I was rather perplexed to know whence the sustenance of the owners was derived. Very possibly the clouds of tiny diptera which appeared at dusk supplied the deficiency. At any rate the spiders were plump and apparently well fed, and the males were courting their mates with an earnestness not in the least suggestive of hard times. The epigynum of this species is figured on Plate 25, Figs. 9, 10, 11, the drawings, which show three typical variations, being made from recently killed specimens.

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Entelecara erythropus (Westr.), 1851.

1851. *Erigone erythropa*, Westr., *Goteb. Handl.*
1862. *Walckenaera borealis*, Camb., *Zoologist.*
1879. „ *erythropa*, Camb., *Spid. Dorset.*
1906. *Entelecara erythropus*, F. P. S., *Journ. Quekett Club.*
1907. „ „ F. P. S., *Journ. Quekett Club.*

The epigynum of this species is illustrated (Figs. 12, 13), two variations from recently killed specimens being shown.

Entelecara trifrons (Camb.), 1863.

1863. *Walckenaera trifrons*, Camb., *Zoologist.*
1879. „ „ Camb., *Spid. Dorset.*
1906. *Entelecara trifrons*, F. P. S., *Journ. Quekett Club.*

The epigynum of this species is figured on Plate 25, Fig. 14, for comparison with the two foregoing. The specimen from which the drawing was made has been preserved for some years in alcohol, and appears to be slightly shrunken.

Troxochrus scabriculus (Westr.), 1851.

1851. *Erigone scabricula*, Westr., *Goteb. Handl.*
1860. *Walckenaera aggeris*, Camb., *Ann. Mag. N. H.*
1864. „ „ Bl., *Spid. G. B. I.*
1871. „ *cirrifrons*, Camb., *Trans. Linn. Soc.*
1879. „ *scabricula*, Camb., *Spid. Dorset.*
1881. „ *cirrifrons*, Camb., *Spid. Dorset.*
1906. *Troxochrus scabriculus*, F. P. S., *Journ. Quekett Club.*
1906. „ *cirrifrons*, F. P. S., *Journ. Quekett Club.*

This species absolutely swarmed during the winter under some haystacks near Croydon. Extensive collections were made, and the opportunity taken of comparing these specimens with others from the north of England. The result of this examination has been to convince me that, in spite of the fact that I have never been able to find actual connecting links, the two male forms, *scabriculus* and *cirrifrons*, ought to be regarded as dimorphic modifications of one species rather than as specifically distinct. In every collection sufficiently extensive to yield trustworthy statistical data these two male forms occurred in fairly constant proportions. The females taken with these were about

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numerically equivalent to what we should expect to find as the complement to the combined males, estimating the proportion of males to females on the averages of a number of allied species. The most critical examination, however, failed to indicate any character which could be employed in separating the females into two groups. The form of the caput of the male, which seems to be the only tangible distinction between these two types, ought not, in my opinion, to be too slavishly followed as a criterion of specific value. I have carefully examined the male palpi in both forms, and their structure appears absolutely identical.

Explanation of Plate 25.

Fig. 1. Epigynum, *Ciniflo similis*, × 45.
„ 2. „ „ *fenestralis*, × 45.
„ 3. Palpus, *Agroeca proxima*, × 45.
„ 4. Epigynum, *Evarcha blancardi*, × 90.
„ 5. Palpus, *Lophomma subaequalis*, × 90.
„ 6. „ „ *laudatum*, × 90.
„ 7. Epigynum, *Bathyphantes nigrinus*, × 90.
„ 8. „ „ *pullatus*, × 90.
„ 9, 10, 11. Epigynum, *Entelecara acuminata*, three variations, × 180.
„ 12, 13. „ „ *erythropus*, two variations, × 180.
„ 14. „ „ *trifons*, × 180.

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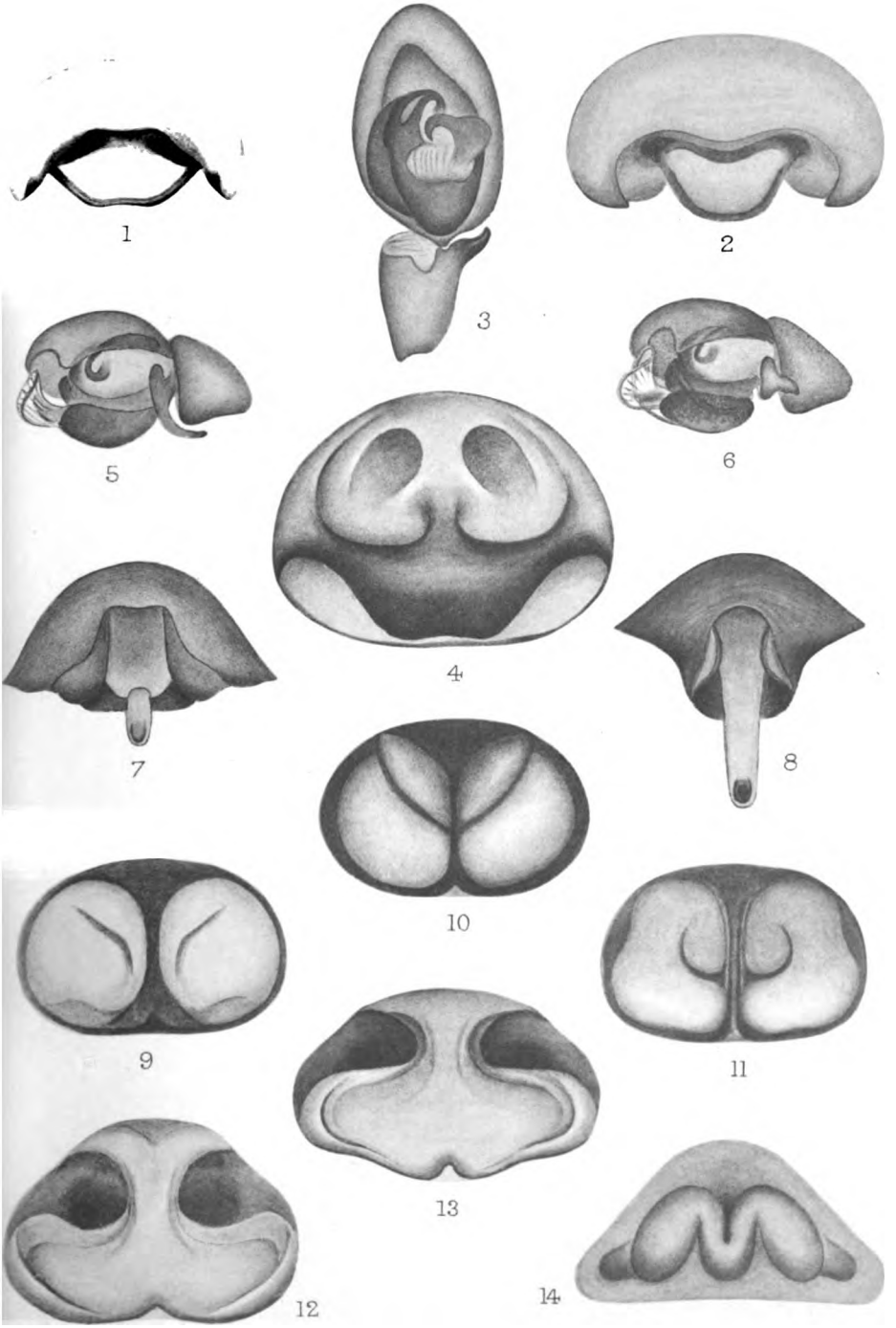

Frank P. Smith, ad. nat. del.

BRITISH ARANEIDEA.

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